DECEMBER 1960

COURIER

THE GEORGE WASHINGTON UNIVERSITY MEDICAL CENTER

The doctor says ham on rye can be like this . . . see page 10

COURIER

THE GEORGE WASHINGTON UNIVERSITY MEDICAL CENTER

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SUBSCRIPTIONS
THE COURIER is being published by the Women's Board of the Hospital to tell the story of The George Washington University Medical Center. Persons may assist in this purpose as sustaining subscribers of $1.00 for one year and $2.75 for three years. Checks should be made to THE COURIER and mailed to the treasurer of The Women's Board, Mrs. Wolfram K. Legner, 4284 N. Vacation Lane, Arlington, Virginia.

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COVER: Air Force Capt. Leon N. Whitehair squeezes the tube to feed himself in a situation simulating space travel. The nose of the tube goes through the faceplate into his mouth. Air Force Photo

Another Step Forward

The Eugene Meyer Pavilion will occupy the area designated above on the East grounds of the University Hospital.

WITH the splendid gift of 1 million dollars from Mrs. Eugene Meyer and some additional funds which it is hoped will be matched by appropriation from the Federal Government, the construction of a new 3 million dollar addition to The George Washington University Hospital is expected to begin early next year. In sincere appreciation of this impetus toward a great medical center at Washington Circle, the new addition will be called the Eugene Meyer Pavilion.

This is another big step forward in the long history of medical service given to the city and community by The George Washington University Hospital.

The George Washington University School of Medicine was established in 1821, and the University's direct hospital service began in 1844—more than a century ago—when Congress granted use of the old Washington Infirmary building at Judiciary Square and it became the city's first general hospital. In 1898 the University's Preparatory School opened its doors as The George Washington University Hospital, and in 1902 added private rooms and wards almost doubling the size of the H Street building. The Hospital move into its beautiful and greatly expanded present home at Washington Circle was accomplished in April, 1948.

Now, some 12 years later, the new 5-story addition at Washington Circle will add 111,000 square feet of service space, which will mean 100 additional beds to the 400 now in full use; new operating-room facilities; expanded emergency rooms; an expansion of pediatrics; and of research, teaching, and service laboratories.

Indeed, as Dean John Parks, Director of the Hospital, has pointed out, it will make available in the center of the city, a completely modern research and teaching hospital. It will benefit both the University and the community, and through increased medical knowledge all mankind.

—Dorothy Betts Marvin

Medicine and Space Travel

Jules Verne Lives Again at Canaveral

By John F. Dominick, M.D. 36

U.S. Air Force Photos

Floating in a specially modified Convair transport are Air Force Surgeon General Oliver K. Kiess and Col. John Paul Stapp, pioneer researcher in space medicine and commander of the Aero Medical Laboratory at Wright. Space crews might be weightless for periods ranging from hours to months, or even years.

A BRIEF ROUTINE news release dated Friday, June 6, 1960, issued by the Commander, Air Force Missile Test Center, Patrick Air Force Base, Florida, at Cape Canaveral, read as follows:

> A group of Medical officers from the Air Force, Army, and Navy today began an intensive two-week training program at the Air Force Missile Test Center, marking the start of the Free World's first course for space surgeons.
>
> The future space surgeons were officially welcomed by Maj. Gen. Oliver K. Niess, Air Force Surgeon General, and Col. George W. Knauf, Air Force Missile Test Center and the man responsible for setting up the course.
>
> General Niess told the group that the course, officially called "Medical Aspects of Space Operations," was a milestone in medical history. He said those selected were carefully chosen by their respective services for future assignment as space surgeons. He said the unique course was strongly supported by the Department of Defense and that Gen. Thomas D. White, Air Force Chief of Staff, had indicated a deep personal interest in it.
>
> The new course will be offered on a continuing basis at Cape Canaveral. Its purpose, according to Colonel Knauf, is to make available a pool of qualified medical officers from the three services who will be able to perform duty as space surgeons to support future requirements of the NASA's Project MERCURY and the man-in-space programs that will follow.

The above terse and matter-of-fact announcement did, indeed, mark the beginning of a new era that has brought to scientific reality the fantasies of the past century as pictured by the fiction of Jules Verne and other authors. It also indicates the rapidity of scientific achievements during this century that began with the flight of the Wright Brothers at Kitty Hawk early in this century.

The activities of science today have been a dominating force in shaping and reshaping the frontier of human knowledge concerning not only

Col. John F. Dominick, who was graduated from the Medical School in 1936, organized the first Air Force Advanced Course in Aerospace Medicine for Allied Flight Surgeons. His career in the Army and the Air Force has included service as Chief in surgical, consultant, and medical sections of the Office of the Air Surgeon and of the Air Force Surgeon General. He has served in Europe and in Okinawa and most recently as Chief of Medical Education and then of the Medical Procurement and Education Division in the Office of the Surgeon General.

the physical boundaries on the earth. They have also directed attention to the boundless mysteries of outer space.

The interest in outer space was given renewed emphasis on October 4, 1957, when the era of space flight was officially inaugurated with the launching of the now-famous Sputnik. It was the first of a series of man made moons fired by both Russia and the United States.

Since that historic day, barely 36 months ago, the United States has launched 26 satellites and 7 of them are still relaying information to the earth. Fourteen United States satellites are presently in orbit.

An aircraft corporation in publicity releases made no apology for such statements as "Space Travel, a dream five years ago, is now so near reality that lunar landings are predicted by the end of this century" . . . "With the possibility of interplanetary flight accepted by engineers, man now looks to outer space and is speculating on new power sources to get him there. A predicted breakthrough is the plasma engine which will harness ions or light itself to drive aircraft nearly 186,000 miles per second."

The above statement seems as fantastic as the news of the first satellite a short time ago. Maj. Gen. Dan C. Ogle, Surgeon General of the Air Force, in an address before the Southern Research Institute, Birmingham, Ala., on May 16, 1957, referred to another "plasma engine"—man himself—this same old model, having enjoyed no engineering improvement since generations before the dawn of history. He emphasized that if space travel is to proceed much beyond that which is accomplished by air vehicles already in operation, then much must be done to select, train, and sustain the human "plasma engine" in four dimensional environments that are becoming increasingly harrassing and complex.

During the past several years we have seen manned flight to outer space. In 1956 Air Force Capt. Ivan Kinchelow flew the experimental aircraft X-2 nearly 24 miles above the earth. During the past 6 months speeds of over 1200 miles per hour have been achieved with operational aircraft.

Vehicles powered by rocket engines need no air either for lift or to burn their fuels, yet man's sea level atmosphere must accompany him wherever he goes, whether at altitudes of 24 miles or hundreds of miles into space.

This points up the fact that there must be parallel advances in aviation medicine and human engineering to accompany the spiral toward space.

Properly selected and trained man can fly well in an open cockpit up to 10,000 feet. Breathing 100 percent oxygen, he can go between 30 and

Wearing the XMC full pressure suit, Dr. Edwin G. Vail prepared for a centrifuge run where he will try to control his "vehicle" while being thrown forward by decelerative forces such as might be experienced on reentering the earth.

40 thousand feet, but at these levels he needs added protection from decreased barometric pressure and from falling temperatures. Beyond this altitude oxygen must be supplied under pressure by mask, cabin or suit pressurization.

Several years ago, Maj. Gen. Harry G. Armstrong, former Surgeon General of the Air Force, called attention to successful animal-carrying rocket flights and remarked that space medicine studies were indicated because, as he expressed it, "if monkeys can do it, we can learn to do it."

By law the United States Air Force provides the National Forces for offensive and defensive air operation. These forces are charged with maintaining general air supremacy.

The fundamental responsibility is not limited to any altitude. Where the atmosphere of earth gradually thins into airless void, there comes no detectable dividing line to mark the transition from air operations to operations in space.

In the Fall of 1917, the Adjutant General of the Army appointed a board of medical officers to study and make recommendations concerning the selection and maintenance of pilots. The first action of this board was to create a research laboratory which exists today as the School of Aviation Medicine, a research institute and part of the United States Air Force Aerospace Medical Center. This center operates as a sub-command of the Air Training Command. World wide attention has centered on space studies at the School of Aviation Medicine at Brooks Air Force Base, Tex. The physiological and psychological problems of zero-gravity

as they may affect the astronaut are continuously under study. Weightlessness in space is a major problem in space travel.

Hypodynamics observed by prolonged immersion in water has been studied as presenting physiologic problems. A young flight surgeon after spending a week in a specially constructed tank of water was able to give valuable subjective information that will help make missile flight safe for the astronaut.

Space cabin simulators have been used to make observations on nutrition, sleep and metabolic functioning of the body. One and two man cabins can be made to approximate the conditions of space flight as to barometric pressure, temperature, humidity, gaseous content of air, facilities for food preparation, waste disposal and personal equipment. Apparatus is available also for testing mental and motor activity as well as the physiologic effects of the environment.

Biomedical instrumentation for collecting data in both ballistic and orbital space flight has been developed at the School of Aviation Medicine.

As the Air Force has pushed its vehicles even higher, it has examined more precisely the physical and mental powers of its crews to endure the hazard of extremes of temperature and other vital factors.

The Air Force has two other major centers for the study of the "human factor" in flight operations. They are the Aeromedical Laboratory in the Wright Air Development Command at Wright-Patterson AFB, Ohio, operated by the Air Research and Development Command which has primary responsibility for the technical superiority of Air Force equipment. As aeronautical progress exerted increasing demands upon the crew and particularly on the pilot, research into the human factor requirement for flight looked more and more to the marriage of man and machine. The Aeromedical Laboratory was founded in 1936. The other major center is the Aeromedical Field Laboratory at Air Research and Development Command's Missile Development Center, Holloman AFB, New Mex. This was founded in 1946. This is a testing facility for high altitude experiments in space biology and for biodynamic tests in "G" stresses with the rocket sled.

A great deal of work is presently under way in the United States in other facilities of the Armed Forces such as the Navy's huge unique centrifuge at the Aviation Medicine Accelleration Laboratory, U. S. Naval Air Development Center, Johnsville, Penna. In addition, facilities of the Army and the National Advisory Committee for Aeronautics, are engaged in Medical research in this field. Many aircraft companies, colleges and universities are also participating.

New worlds have always been hard to conquer. Yet for those with vision and ambition the future has always appeared stimulating and bright.

William Harvey suffered ridicule and scientific ostracism for teaching the circulation of the blood; van Leeuwenhoek's crude microscope upset vital traditions in microbiology; and more recently a group of men meeting in secret under a college stadium caused the invisible atom to react with a force that will affect man for all time.

Space Medicine Is Born

Space medicine, which is but an extension of aviation medicine, will insure that all is done that can be done to promote the safety, efficiency and comfort of those who orbit the earth or who may later escape the chaos of gravity and soar into true space. Such effort will cut across the scientific disciplines of astronautics, electronics, physics, chemistry and all the life sciences.

As man plans his conquest of space, he faces his most limiting conscious spatial confinement. He must embark upon his celestial excursions encased in a cramping capsule of natural environment. Attention must be directed to prevent physiological and psychological trauma of acutely demanding and prolonged confinement.

"There are no textbooks or precedents in space medicine" at the unusual school at Cape Canaveral. The pioneer astronaut will encounter hazards at the new space frontier never dreamed of by Columbus and his crew. The work of the research teams has been gathered here at this world famous missile center to aid him in meeting the problems of tremendous acceleration, weightlessness, cosmic radiation and isolation.

In June 1960, the unique space age school graduated 25 doctors in the free world's first course in the Medical Aspects of Space Operations. The school is an outgrowth of Colonel Knauf's assignment as Chief of Bioastronautics for Defense Department support of Project Mercury. The objective is to train a group of flight surgeons for the medical role in the first U. S. manned flight into space under the auspices of the National Aeronautics and Space Administration (NASA). The new breed of medical men emerging in the country's space program will be schooled in the science of bio-astronautics.

The school conducts classes in the Central Control Building at Cape Canaveral. The curriculum is divided into three phases.

First, the space surgeons get basic indoctrination in space operations: principles of rockets, problems of launching and handling, characteristics

of space environment, types of flight paths possible in space, history of astronautics.

Next they are schooled in space problems, space simulating devices, methods of selecting and training of astronauts. Then they spend time on Project Mercury to relate classroom theory to the actual program.

They spend 30 per cent of their time in the field at the Canaveral's launch pads, missile assembly hangars and space facilities. Here they are briefed on the Mercury capsule, the Atlas that will boost it, the escape system, parachute descent and re-entry problems.

The theorem that the capsule will travel at between 17,000 and 18,000 miles per hour, means that it will take 90 minutes to make the circuit of the earth. The astronaut will probably make 3 circuits on this initial ride.

The role of the space surgeon will consist of monitoring stations around the globe to receive information on the astronaut as he goes by overhead. They will evaluate his physical condition at each stage of the flight. They will be in voice communication with the astronaut so where necessary they will advise. They will advise the flight controller on his condition or in the face of some untoward situation may recommend that the capsule be called down.

Every effort is being made to give the astronaut the best medical advice that can be obtained during his flight.

Students for the course in Space Medicine are hand picked from the top physicians from all three services. Acknowledged leaders in the space field have been called upon to comprise the faculty.

The Mercury project is only the beginning for the new group of medical pioneers described as space surgeons.

After Mercury will come later problems with Project Dyna-Soar, a manned space flight now in the development stage. In this program the astronaut will have pilot control and will be able to soar to his landing spot.

The highly successful flight of the three "space-mice" Sally, Amy and Moe, aboard the Atlas missile during October 1960 indicates that the stresses they encountered during their 30 minute journey into space were met successfully. They apparently withstood very well the G-forces up to 15 to 20 times their normal weight at the blast-off. What the effect of the von Allen belt of cosmic radiation had on the mice is still an unknown quantity.

Despite the talk of push-button technology, it is the man who will be the determining factor in future explorations of the mysteries of the airless void surrounding the earth.

The marshalling of our best medical resources will be necessary to support the space traveller. Medicine is playing a large part in these explorations.

The newer dimensions of physical fitness to withstand the stresses of the unfamiliar environment will be of great benefit to medicine as the frontiers of physical tolerances are explored.

The historical development of space medicine is also reflected in the field of education; for many years courses in Aviation Medicine for flight surgeons of the United States have been held at the School of Aviation Medicine, formerly at Randolph AFB, Tex., now at Brooks AFB, Tex. For more than five years, space medicine and astrobiological topics have been included in these curricula in order to familiarize the medical students and physicians with problems of the future.

The renaissance in aeromedical research has been sparked by the rocket with its extra-atmospheric capabilities. The appearance of artificial satellites has given a powerful boost to medical and biological research in which the foremost medical institutions of the United States Air Force have played an early and leading role.

The rapid and startling new explorations in the medical aspects of bioastronautics is continually being disseminated to the medical field through frequent symposia sponsored by the United States Aerospace Medical Center in San Antonio, Tex. In January 1960 over 400 leading scientists of the United States gathered there for 5 days of discussion of these problems. Also present were deans and faculty members of approximately 80 medical schools in the United States under the sponsorship of the Department of Defense-Medical Education for National Defense program. These recent advances in physiology, biology and other aspects are reaching our medical students throughout the United States. In addition, many representatives of the Free World nations have attended these milestones in the rapidly developing field of Space Medicine.

Tests in the high altitude chamber of the Aero Medical Laboratory, Wright-Patterson Air Force Base, demonstrate rapid decompression a pilot would encounter if his plane's canopy broke at high altitude.

Mrs. Burgess Represents District

Becomes Hospital Auxiliary Adviser

Mrs. Samuel McElroy Burgess, II, member of the Women's Board of the University Hospital has been appointed Hospital Auxiliary Adviser for the District of Columbia to the Maryland-D.C.-Delaware Hospital Association and to the American Hospital Association.

Mrs. Burgess has been a member of the Women's Board for 13 years. During World War II she served for two years as Red Cross Dietician's Aide at the old George Washington Hospital. She served four years as Chairman of the Sewing and Knitting Committee of the Women's Board, and was a member of the Solarium Redecorating Committee.

She is a member of the American Cancer Society Board of Trustees-District of Columbia Division, Inc., the Arts Club of Washington, and the Capital Division of the Women's National Farm and Garden Association, Inc., the Washington Club, and the Women's Club of Chevy Chase, Maryland, Inc. In all these clubs and organizations, she has served in several capacities, contributing to their programs and accomplishments in the community. She was Chairman of the Volunteer Services Committee of the American Cancer Society, D.C. Division for two and one half years during which time a new volunteer service was initiated which resulted in a saving of approximately $2,000 to the Cancer Society. Volunteer workers gave their services as counters and clerical workers to clear Cancer Crusade Funds during Crusades, thus saving the American Cancer Society the cost of employing paid bank tellers and clerks as had been done in previous years.

From left, Mrs. Sorrell; Mrs. John Parks, Chairman of the Hospital Women's Board; and Mrs. Kiep.

Women's Board Redecorates and Inspects Solarium

Last year's interest from the Dorothy Betts Marvin Endowment Fund administered by the Hospital Women's Board has been used by the Board to redecorate the 6-A Solarium for use of ambulatory patients.

The Board's committee of members with special backgrounds in art and redecorating selected a new ceiling, floor, blinds, draperies, and furniture which were paid for by the endowment interest and also by an anonymous gift from an individual board member. In addition three lamps were given by another board member, and a companion planter to a previous gift was given by the original donor, Mr. Howard de Franceaux, who had been a patient.

Mrs. Francis L. Kiep chaired the Decorating Committee. She was assisted by Mrs. Samuel Burgess, Mrs. James M. Johnston, Mrs. G. S. Letterman, and Mrs. William G. Sorrell.

Board members pictured on this page were photographed during an inspection of the Solarium after the Board's first Fall meeting.

Mrs. Oswald C. Colclough and Mrs. Robert W. Bolwell.

Mrs. Burgess and Mrs. Walter E. Miller.

Allergy to Bees and Wasps

By HALLA BROWN, M.D.

Dr. Brown

AMONG LIVING creatures on earth the class, Insecta, is relatively little known. Most people know few of its million species.

By and large at our latitude most people live out their suburban lives experiencing only minor annoyance from insects—an occasional fly buzzing about the kitchen, gnats pestering their nostrils on summer evenings, or horse flies biting at the beach.

However, certain occupations entail the hazard of frequent bites or stings. Landscapers, builders, farmers, fence installers, fruit pickers, roofers, carpenters, and even the fireman climbing a ladder against a vine-clad house may run the risk of occasional stings.

Humans are not alone in being incapacitated by insect bites or stings. Every year, in the United States and in other parts of the world, valuable cattle are killed by the bites of hordes of small flies. These deaths are thought to be caused by the toxin—an overdose reaction that would occur in any animal or human if too much poison is administered. It may well be however, that an occasional animal has died of an allergy to the toxin rather than from an overdose. There is a well-documented case of a man who, bitten a second time by the same species of poisonous snake, died of anaphylaxis (an allergic reaction) to the venom, and not from the toxic effects of the venom.

For these reasons a serious study of these toxic effects and allergies, including an understanding of the life habits of the offending insects, has become a matter of concern to physicians and their patients.

Although there have been cases of severe allergy caused by gnats (Diptera), deer flies, and butterflies (Lepidoptera), only the Hymenoptera will be discussed in this article.

The order Hymenoptera is composed of:

1. Apids—Bees
2. Vespids—Wasps
   Hornets
   Yellow Jackets
3. Formicids—Ants

Only the social types of Hymenoptera present any real hazard to man. Bumble bees, nesting in small groups and having placid dispositions, rarely sting unless a careless person, like Ferdinand, sits on the insect.

Each of the social types builds a characteristic hive:

- Hornets make gray, papier-mâché, football shaped nests near the end of a branch in a tree or big bush. A single hive may contain 10,000 sand hornets.
- Wasps build flat gray open-comb nests that hang by a fine pedicle from eaves, shutters, window-frames, or lie inside steel pipes, under fence rails, in trees, and under sheltered projections of carports, porches, or rocks.
- Yellow jacket hives are built under the ground, the entrance alone being visible. Honey bees usually do not swarm about human habitations but choose a hollow tree in the woods. Their presence can be detected at a considerable distance by the loud buzzing and the long trail of bees flying in one direction.

The increased incidence of vespid stings in late summer can be explained by the life cycle of the insects. The vespid queen alone survives frost, holing up all winter in a log. In spring she must build the hive, lay the eggs, feed the larvae, clean the hive, etc., until a generation of workers has matured. With each successive egg-laying, the numbers of workers increase until by late summer they are legion.

Unlike the vespids, the bees have learned to survive the winter. They keep the hive at a relatively even temperature by moving their wings faster, the colder the weather. Although a hard winter may reduce their numbers, still there are enough bees in spring to pollinate the early crops.

RESULTS OF A HOT NIGHT'S WORK

Working in insect allergy is not without its amusing incidents. Dr. Brown recalls the devastating experience of a former colleague. Once Dr. Mary H. Loveless of Cornell University met a Ph.D. who was working on the hormones in the excreta of male yellow jackets. Since he wanted only the males, and she only the stinging females, they went collecting at night. They carefully dug up hives bare-handed since this is a more delicate way of finding the edge of the hive than with a shovel. One hot August night her "catch" was unusually good, and not having enough containers, she stuffed some hives inside a paper bag which she placed in a shopping bag. The windows of the Long Island local train were open, and after a while she noticed that her near-by fellow passengers were flailing the air, swatting yellow jackets. Not wanting to lose any fraction of her night's work, she pretended that she had noticed nothing unusual and continued reading. Once arrived in New York City, she rushed in a taxi to the huge laboratory refrigerator and with a sigh of relief hurled in the shopping bag. The next morning she discovered that the refrigerator was broken and that one of the technicians had inadvertently left the inside refrigerator door open so that the entire laboratory was swirling and buzzing with angry insects. Needless to say, the chief engineer was not enamoured of the idea of entering the room to fix the refrigerator. And more hours were needed to persuade him than had been taken up in the whole expedition.

Hence most human stings in early summer are caused by bees, in late summer by wasps.

Hives unquestionably have different personalities. In general, yellow jackets are the most vicious, stinging repeatedly if caught inside a trouser leg, and able to pursue any supposed enemy for a long distance from the hive.

Hornets, too, at times without much provocation will attack a foe, but since their hives are in trees rather than in the ground, humans can avoid them more easily.

Wasps on the whole are not vicious, but since they often build close to houses, they are frequently threatened, as by the home-owner installing screens.

Bees in this country, since they have been carefully bred from the unaggressive Italian strains, tend to be relatively calm unless the hive is threatened, but each hive has its individual characteristics. A bee from one hive will not be accepted by another hive of the same strain without a period of conditioning during which she must be protected until she, too, assumes the smell of that particular hive.

In all of these species only the female stings. The queen, the only fertile female in the hive, does not under natural conditions sting humans, but only another rival queen. The males or drones have no stingers. The workers, sterile females, build the comb, collect the honey, clean the hive, feed the young, guard the entrance against enemies, and sting them if necessary.

Bees and the vespids differ in their type of stinger. Worker bees, when they sting, lose their venom sac which remains attached to the stinger in the victim's skin. The hollow stinger is straight and barbed, and the venom is forced through it by the contractile smooth muscle of the walls of the venom sac. Meanwhile the bee flies away and soon dies. The vespids, on the other hand, have a smooth (non-barbed) curved stinger. They do not lose their venom sac while stinging and therefore can sting only while poised upon the victim. However they can return to sting and sting again until no venom is left. Interestingly, the queen bee has the curved archaic type of stinger of the vespids.

The exact quantity of venom contained in a venom sac is not known and probably varies depending on species, weather conditions, season, and other factors. For honey bees the average sac seems to contain one small drop, perhaps as much as .03 a milliliter. It takes two to three minutes for the entire contents of the venom sac to be emptied through the stinger.

The exact incidence of Hymenoptera allergy is not definitely known. Death statistics do not reflect the true incidence, for some cases, occuring for instance in a middle aged man trimming a hedge, are reported as "heart

attacks". In the United States more deaths occur currently from Hymenoptera stings each year then from poisonous snake bites.

The earliest record of a human death from Hymenoptera sting occurred in 2765 B.C. when an Egyptian Pharaoh sailed to what is now the British Isles. On landing he was stung by a "hornet" and almost immediately died.

What is the mechanism whereby one drop of venom, diluted 1:3 million can cause the death of a 200 pound man? Obviously this is not a toxic effect from overdosage, for it takes perhaps a hundred or more stings to kill an average man. Bee keepers who have been stung repeatedly have been known to survive about 200 stings. In other words, apiarists, who have received repeated stings, develop some sort of protection or immunity. This is a totally different mechanism from allergy.

The normal man when stung by a bee or vespid develops an itchy or painful swollen area, depending on the irritating properties and the amount of venom injected. These symptoms usually subside in a day or two, provided that the sting has not become secondarily infected.

The usual clinical story of a patient developing an allergy to venom is as follows: He has received a number of stings in the past without any unusual reaction. After another sting he develops at the site a large red swelling lasting 2 or 3 days. Then some weeks or even years later another sting causes an enormous swelling of the whole limb for 4 or 5 days or more. The next sting may be followed within 20 to 30 minutes by hives, and subsequent stings by asthma, nausea, weakness, dizziness, or loss of consciousness.

Only a tiny percentage of people stung become allergic to insect venom. These patients develop a peculiar antibody which, instead of protecting the patient, promotes the allergic symptoms. The type of antibody is not definitely known. Some allergists and immunologists consider it a reagent or allergic antibody, others a precipitin. It is not a naturally occurring antibody, as is seen in ragweed hay fever, for it arises only after artificial injection, i.e. the bee sting.

For centuries apiarists have known that somehow repeated stings caused immunity. Early in the Spring beekeepers sometimes notice moderate swelling from the first stings of the season, but later in the summer after more stings, not even a pimple occurs. Whenever a bee keeper develops hives after a sting, he in a crude way immunizes himself by allowing a bee to sting him for gradually lengthening periods—at first for 1 second, the next day for 2 seconds, then for 3, for 5, for 10 seconds, etc. until he is able to tolerate one or more full (3 minute) stings.

Dr. Halla Brown, Associate Professor of Clinical Medicine at the University Medical School and Chief of the Allergy Section at the University Hospital, has for 10 years been engaged in an unusual search for better materials to protect sensitive persons from serious illness or death from insect stings. She has been concerned with use of insect venoms as antidotes to allergies. She was a pioneer in Washington in use of the "1-shot" or repository treatment of hay fever. Dr. Brown is a consultant in allergy for the Veterans Administration, Glenn Dale Hospital, and the National Institutes of Health. She is now working on a project in dander allergy which is sometimes incurred by researchers working with laboratory animals.

Clinically our methods of immunization for bee allergy are merely refinements of this fundamental technique. The most practical method used today is to inject the patient at weekly intervals with an extract made from whole insects or from a mixture of insects. Once the greatest tolerated dose has been reached, the injections can be maintained at monthly intervals during the summer and at somewhat longer intervals during the winter. The disadvantages of this method are that little of the extract is composed of the true antigen, and that the many other antigens in the mixture might conceivably sensitize the patient.

A less frequently used treatment, but one that can be given in one day, is to inject the patient with tiny doses of freshly diluted venom, gradually increasing the amount. This patient will be immunized usually for about three and a half months, but may have lost his immunity by the next Spring, in which case the one day immunization will have to be repeated. The disadvantages of this method are that adequate amounts of fresh venom are difficult to procure, in fact almost impossible in the winter months, and that it takes many hours of venom-extracting to prepare for one patient.

Conditions of being stung are variable. Occasionally stings are intravenous. The number of stings received, their depth, the tissues receiving the venom, the circulation of the part or of the patient in general—all these affect the patient's reaction to any given sting.

Since many stings are received through carelessness, much can be done to prevent them. Getting rid of hives near one's house is important. The

Medical Notes for Laymen

. . . medicine on television

Dr. Adrian Hogben, Professor of Physiology, will continue lectures on *The Human Body* over Television Channel 9, WTOP, through January.

These lectures are part of a 45-session course taught by the University on Mondays, Wednesdays, and Fridays at 6:30 a.m. during the Fall semester as part of WTOP's Channel 9.

Radio versions of these lectures are being prepared for broadcast world wide through the Voice of America.

(Continued from page 25)

Department of Agriculture publishes a pamphlet on the best ways to do this. Wearing sneakers will prevent stings received while walking barefoot on clovered lawns which attract honeybees. The principle of the "rattlesnake technic" should be observed during the summer months: Never touch, sit on, or step on any object without first looking at it, around it, and under it.

Although we know a good deal about the Hymenoptera and their habits, we know next to nothing about their venom, except that it comes from two glands, one acid, the other alkaline. Although our present methods of immunization work reasonably well and are safe enough, we really do not understand the basic immunology concerned. Many fundamental experiments, needed for understanding of the whole subject of insect allergy, have not been done, and our progress must be slow until this basic work has been accomplished.

Collection of venom is one of the big problems, for it takes large numbers of live healthy wasps or yellow jackets to immunize a single patient. So far, friends, neighbors with wasps in the attic, scouts, choir boys, and patrol boys have not supplied as much as we need, and at times our experiments are limited by the lack of venom. Newer methods of freezing are only slightly lessening this predicament.

Any type of accurate statistics also would be of help. At the present time we do not know how many people a year are stung, by what insect, its exact identification, the interval since the last sting, whether allergic reactions to insects tend to run in families, if so whether these are allergic or non-allergic families in general, and many other things.

. . . causes, effects, treatment of epilepsy

A free booklet designed to give the epileptic, his family, and friends an understanding of the condition and advice about treatment has been written by Dr. Virginia A. Duggins AM 51, MD 55, Clinical Instructor in Neurology at the School of Medicine and Medical Officer in Neurology at St. Elizabeths Hospital. The publication, "Epilepsy—Its Causes, Effects and Treatment," was written especially for the Federal Association for Epilepsy, and is available at their offices at 1729 F Street N.W., Washington 6, D. C.

. . . women hospital pharmacists

University School of Pharmacy Dean Charles W. Bliven reported that increasing numbers of women are turning to pharmacy careers, and that women today constitute one-third of all hospital pharmacists.

Dean Bliven predicted that the percentage of women studying pharmacy would increase from its present 12 per cent and cited statistics which show that many women pharmacists have been able to raise families while working part time and then resume full time professional careers after their children are grown.

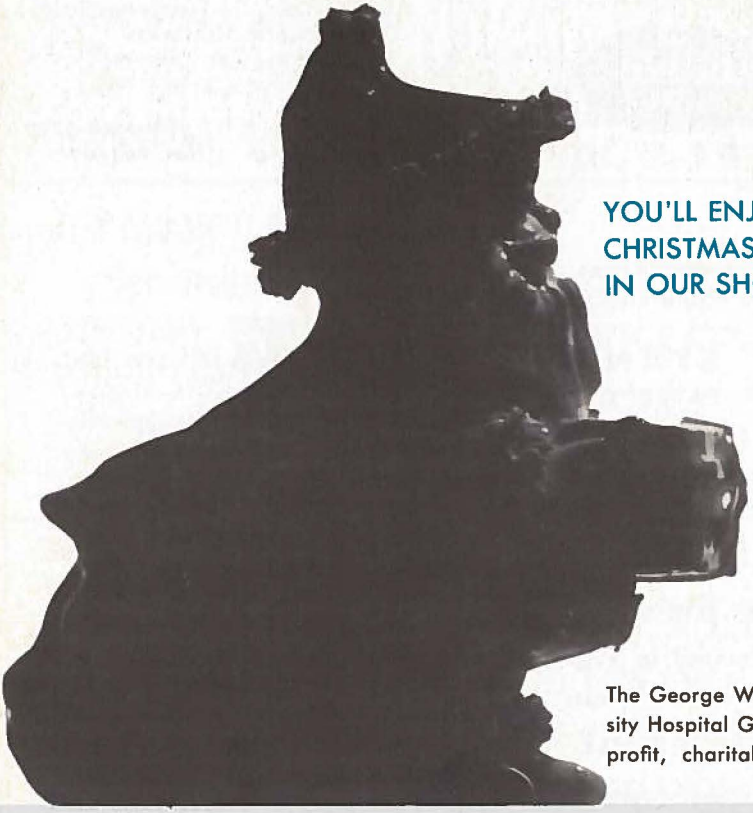
. . . voluntary health insurance

Dr. Donald H. Stubbs AB 29, AM 31, MD 32, was one of three leaders in the field of national health awarded the Health USA citation for 1960.

Dr. Stubbs was honored as Chairman of the Board of the National Blue Shield Commission for his work on voluntary health programs. Other honorees were Maj. Gen. Howard Snyder, physician to the President, and Elmer Bobst, Chairman of the Board of Warner-Lambert Pharmaceutical Company.

Speaker at the Women's Auxiliary Section Meeting of the Maryland-District of Columbia-Delaware Hospital Association was University Professor Don Carlos Faith, shown with the presiding officer of the meeting, Mrs. Edward F. Brennan, and Mrs. Francis L. Kiep of the Hospital Gift Shop. Left, Mrs. James J. Feffer, Mrs. Harvey Hewitt, and Mrs. Charles Thompson examine the George Washington gift shop exhibit featured at the meeting.

WOMEN'S BOARD GIFT SHOP



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